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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,183	04/04/2001	Ruggero Maria Santilli	3293.004A	9175

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EXAMINER

TOOMER, CEPHIA D

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/826,183

Applicant(s)

SANTILLI, RUGGERO MARIA

Examiner

Cephia D. Toomer

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 112-124, 126-130, 134 and 135 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 112-124, 126-130, 134, 135 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is in response to the remarks filed July 13, 2006.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-11, 13-25, 27-50, 52-62, 64, 66-89, 91, 95-98 and 100-101 are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility. All of the instant claims are drawn to a chemical composition comprising a population of clusters of one of a molecule, a dimer and an atom and combinations thereof in combination with another molecule, dimer or an atom, and any combination thereof which is unidentifiable under currently available detectors. At page 3, last paragraph through page 4, lines 1-17, applicant states:

The exposure of a gas at atmospheric pressure to an electric arc may also create clusters. They are generated, however, in such small numbers as to be undetectable. Accordingly, these clusters have no industrial or consumer value such as those that may be created by the arc disclosed in an unrelated invention described in U.S. Patent No. 5,487,874 to Gibboney Jr. Therefore, the exposure of a molecular species of a gas to an electric arc leaves the original molecular species mostly unchanged in the sense that the species remains an essentially

Art Unit: 1714

pure population of conventional molecules. Accordingly, only when a gas is forced to pass at high pressure through a restricted area surrounding an electric arc of a PlasmaArcFlow Reactor of the present invention can the chemical species of clusters be produced in which a chemical species of molecules is turned into an essentially pure population of clusters.

It is clear from known principles of physics and chemistry that the instant compositions cannot exist according to conventional theory. No assertions of such a population of clusters have been recognized or verified by the scientific community.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-11, 13-25, 27-50, 52-62, 64, 66-89, 91, 95-98 and 100-101 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not enable one of ordinary skill in the art to make a population of clusters of a molecule, a dimer, an atom and combinations with another molecule, dimer, or atom and any combination thereof wherein the clusters are

detectable via peaks in mass spectrometry, and wherein said clusters have no infrared signature for a gas or ultraviolet signature for a liquid, in that it would require undue experimentation to do so.

Factors to be considered in determining whether a disclosure would require undue experimentation include, (1) the breadth of the claims, (2) the nature of the invention, (3) the state of the prior art, (4) the level of one of ordinary skill, (5) the level of predictability in the art, (6) the amount of direction provided by the inventor, (7) the existence of working examples and (8) the quantity of experimentation needed to make or use the invention based on the content of the disclosure. In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

(1) the breadth of the claims

Since all of the claims encompass a population of clusters, and it has been shown hereinbefore with respect to the rejection under 35 U.S.C. 101 for inoperability that such cannot exist, the claims are not enabled. The question of whether a specification provides an enabling disclosure under 35 U.S.C. §112, first paragraph, and whether an application satisfies the utility requirement of §101 are closely related.

Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1358, 52 USPQ2d 1029, 1034 (Fed. Cir. 1999). To satisfy the enablement requirement of 112, first paragraph, a patent application must adequately disclose the claimed invention so as to enable a person skilled in the art to practice the invention at the time the application was filed without undue experimentation. Enzo Biochem, Inc. v. Calgene, Inc., 188 F.3d 1362, 1371-72, 52 USPQ2d 1129, 1136 (Fed. Cir. 1999). The utility requirement of §101

Art Unit: 1714

mandates that the invention be operable to achieve useful results. Brooktree Corp v. Advanced Micro Devices, Inc., 977 F.2d 1555, 1571, 24 USPQ2d 1401, 1412 (Fed. Cir. 1992). Thus, if the claims in an application fail to meet the utility requirement because the invention is inoperative, they also fail to meet the enablement requirement because a person skill in the art cannot practice the invention. Process Control, 190 F.3d at 1358, 52 USPQ2d at 1034.

(2) the nature of the invention

As stated above, the vast majority of the scientific community has held the belief that a population of clusters that are detectable via peaks in mass spectrometry but not by IR or UV spectrometry is not attainable. Accordingly, the nature of the invention is such that it would be startling if it were operative, thus requiring greater detail and guidance than that found in the instant specification to provide enablement.

(3) the state of the prior art

There appears to be no prior art showing materials that qualify as a population of clusters of a molecule, a dimer, an atom and combinations with another molecule, dimer, or atom and any combination thereof wherein the clusters are detectable via peaks in mass spectrometry, and wherein said clusters have no infrared signature for a gas or ultraviolet signature for a liquid.

(4) the level of one of ordinary skill

Since even the most highly skilled physicists and chemists would agree that according to conventional theory, the instant invention cannot be produced, the threshold of enablement is not met on pages 1-57 of the instant specification.

(5) the level of predictability in the art

It would be most unpredictable that a population of clusters of a molecule, a dimer, an atom and combinations with another molecule, dimer, or atom and any combination thereof wherein the clusters are detectable via peaks in mass spectrometry, and wherein said clusters have no infrared signature for a gas or ultraviolet signature for a liquid has been produced, by the instant methods or otherwise. See the reasoning presented hereinbefore with respect to the rejection under 35 U.S.C. 101 for inoperability.

(6) the amount of direction provided by the inventor

It is the examiner's position that applicant has not provided sufficient guidance throughout the specification to enable one of ordinary skill in the art to make and use the instant invention. The instant specification is devoid of direction and guidance necessary to enable the skilled artisan to identify or produce a population of clusters of a molecule, a dimer, an atom and combinations with another molecule, dimer, or atom and any combination thereof wherein the clusters are detectable via peaks in mass spectrometry, and wherein said clusters have no infrared signature for a gas or ultraviolet signature for a liquid. While applicant generally alludes to "a population of such clusters", applicant has not set forth any positive or specific process steps which would allow one of ordinary skill to produce these clusters. It is the examiner's position that long and tedious trial and error would await any person skilled in the art reading applicant's specification and attempting to detect or produce a population of clusters of a molecule, a dimer, an atom and combinations with another molecule, dimer, or atom

Art Unit: 1714

and any combination thereof wherein the clusters are detectable via peaks in mass spectrometry, and wherein said clusters have no infrared signature for a gas or ultraviolet signature for a liquid.

(7) the existence of working examples and (8) the quantity of experimentation needed to make or use the invention

The quantum of proof required to establish enablement is inextricably linked with the degree of unpredictability of the relevant art.

The art of molecular clusters is an extremely unpredictable one. Small changes can result in dramatic changes in or loss of properties. The amount and type of examples necessary to support broad claims increases as the predictability of the art decreases. See In re Fisher, 166 USPQ 18, 24 and In re Angstadt and Griffen, 190 USPQ 214, 218. Claims broad enough to cover a large number of compositions that do not exhibit the desired properties fail to satisfy the requirements of 35 USC 112. See In re Cook, 169 USPQ 298, 302 and Cosden Oil v. American Hoechst, 214 USPQ 244, 262. Merely reciting a desired result does not overcome this failure. In re Corkill, 226 USPQ 1005, 1009.

It should be noted that at the time the invention was made, the theoretical mechanism of a population of clusters was not well understood. (This is still the case today). Accordingly, there appears to be little factual or theoretical basis for extending the scope of the claims much beyond the proportions and materials actually demonstrated in Gibboney (US 5,487,874), wherein Applicant alleges that a population of clusters are formed but are undetectable. A "patent is not a hunting license. It is not

Art Unit: 1714

a reward for the search, but a reward for its successful conclusion", Brenner v. Manson, 383 US 519, 148 USPQ 689.

4. The declarations submitted by the various members of the scientific and non-scientific community have been considered but are deemed to be persuasive. None of the declaration has drawn a direct nexus between the declaration and the claimed invention.

5. Applicant argues that the examiner is reading out of content the passage at pages 3 and 4 and has construed the passages to mean that the species as claimed cannot exist.

6. The examiner has not taken the passage out of context but has merely drawn from the passage what is set forth, i.e., that the instant composition cannot exist according to conventional theory. Here again, no member of the scientific community has verified the existence of Applicant's chemical species.

7. Applicant argues that the examiner has ignored the experimental evidence of the instant application, i.e., unidentifiable peaks in the mass spec, lack of IR signature for gases and lack of UV signature for liquids. Applicant argues that these features prohibit applicant's clusters from being molecules.

Applicant has pointed to spectroscopic data which allegedly shows evidence for applicant's "clusters". Applicant's basis is that such clusters lack conventional infrared, UV or "other signature." On the one hand since applicant has ruled out the use of conventional experiments to detect applicant's clusters, how would one of ordinary skill in the art know what techniques to use without undue experimentation? On the other

hand, it appears that applicant has used conventional techniques such as MS to identify his clusters. This is clearly confusing. As best understood, it is applicant's position that chemical species which do not show such signatures when subjected to characterization by conventional spectroscopic techniques must lack conventionally established modes of chemical bonding. Applicant believes that such species are held together by new forces ("new bonds not based on valence" in Kadeisvilli's words, see page 2, line 6 in the preprinted titled "Experimental Evidence On A New Heavy Species Of Hydrogen With Santilli Magneuclear Structure"). But applicant's arguments ignore a very crucial point that decades of scientific research involving the study of innumerable chemical compounds do provide a satisfactory explanation for the stability of compounds based on one or more types of bonds such as ionic, polar, covalent, dipolar, van der Waals and/or the hydrogen bond. Indeed, it is incredible that decades of established scientific research has overlooked an alleged new type of bond or force involving the simplest of all elements, i.e., the hydrogen atom.

8. Applicant argues the he lists numerous facilities that are independent testing facilities and wherein he has no affiliation. Applicant states that these testing facilities have substantiated his findings.

The examiner fails to find any declarations from the staff of these facilities or any facility that substantiates Applicant's findings.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cephia D. Toomer whose telephone number is 571-272-1126. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Cepha D. Toomer
Primary Examiner
Art Unit 1714

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